Chapter 3

Affected Environment, Environmental Impacts, and Mitigation Measures

3. AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter of the EIS describes baseline conditions for the respective elements of the environment, documents the expected environmental impacts of the proposed action and the alternatives, and identifies mitigation measures pertinent to those impacts. The intent is to focus specifically on the environmental conditions that would likely be subject to significant change from development of the project. Consistent with guidance provided by SEPA rules, insignificant impacts and elements of the environment that would not be affected significantly are discussed briefly or not at all. Based on the results of scoping for this EIS, this chapter is organized into 13 sections addressing the following elements of the environment:

- Earth
- Water
- Plants/Wetlands
- Animals and Fish
- Energy and Natural Resources
- Noise
- Land and Shoreline Use (including Housing)
- Aesthetics
- Light and Glare
- Recreation
- Historic and Cultural Preservation
- Transportation
- Public Services and Utilities

Each section includes a similar subheading structure. The affected environment is addressed first in each section, in a level of detail sufficient to allow an overall understanding of the baseline conditions. For most elements the geographic focus of this discussion is the 153 acres of Sand Point Magnuson Park that comprise the project site, although information on conditions elsewhere within the park and in the surrounding community is provided when that context is pertinent to the impact analysis. Subsequent material presents the expected environmental consequences of the proposed action, given the baseline conditions for each element and the project characteristics described in detail in **Section 2.2**. Impacts are then provided for the lesser-capacity alternative and the no-action alternative. Because the lesser-capacity alternative involves similar actions within the same project site, impacts for this alternative are presented in comparison to those for the proposed action. Consequences under the no-action alternative consist of the existing conditions on the site projected into the future, as they might likely be shaped by expected park management.

In each section, material on the impacts of the alternatives is followed by discussions of cumulative impacts, mitigation measures, and significant adverse unavoidable impacts. Assessment of potential cumulative impacts for each element requires that the expected effects of the proposed project be considered within the context of other past, present and reasonably foreseeable actions affecting the resource. The mitigation discussions specifically distinguish between those measures to avoid or reduce expected impacts that are proposed, i.e., that are incorporated into the plans for the proposed action, and other, possible measures that have not been adopted as part of the project.

3.1 EARTH

Most of the material presented in this section is based on geotechnical information contained in a report on a recent independent hydrogeologic investigation (AMEC Earth and Environmental, 2000) and the project drainage report prepared by Rosewater Engineering in December 2001. The full drainage report is contained in **Appendix B** of this Final EIS.

3.1.1 <u>Affected Environment</u>

3.1.1.1 Geology/Topography

Sand Point Magnuson Park, which includes the 153-acre project site, occupies most of the Sand Point peninsula that extends into Lake Washington. The site is within the physiographic province known as the Puget Lowland, a system of partially drowned stream valleys interspersed among hummocky plains comprised of glacial till and gravels (Jackson and Kimerling, 1993). The surface character of the Puget Lowland, including north-south trending features such as View Ridge and the basin of Lake Washington, shows the effects of erosion by Pleistocene glaciers.

In the early 1900s, prior to its purchase by King County and subsequent transfer to the United States Navy, the Sand Point peninsula was occupied by farms. The original topography included primarily undulating forested land, with low knolls reaching up to about 50 feet above the elevation of the lake, and some lower-lying marsh lands in some locations (Jones and Jones, 1975). The topography of the peninsula changed considerably in 1916 when the Lake Washington Ship Canal opened and the water level of the lake dropped by 8 to 9 feet. King County began construction and operation of a small local airport in 1921, then transferred the property to the U.S. Navy in 1926, after which the Navy began construction of a runway and support facilities for a Naval Reserve air station. The air station received its greatest amount of development activity between 1932 and 1942, resulting in most of the site being leveled, filled and paved to support military activities. In the early 1970s, the landscape was changed again when the Navy transferred a portion of the site to the National Oceanic and Atmospheric Administration (NOAA) for administrative use, and another portion to the City of Seattle for park use. This required demolition of the runway and related paved areas. Materials from the demolition were deposited at Sand Point Head to create a low hill that is now named Kite Hill.

Existing topographic conditions on the project site are indicated in **Figure 2.1-2**, which was introduced previously. As a result of the natural topography and past grading activities, the project site generally drains gradually from west to east toward Lake Washington. Surface elevations range from approximately 80 to 90 feet at the southwest corner of the project site, near the NE 65th Street entrance to the park, to 20 to 22 feet (depending on the season of the year) at the shoreline along Lake Washington. Adjacent to the project site on the south, the hillside area of Promontory Point within Sand Point Magnuson Park reaches elevations above 100 feet. The off-site terrain rises considerably to the west of Sand Point Way, reaching an elevation of nearly 400 feet at the top of View Ridge.

The project site is relatively flat with average slopes of less than 1 percent. Existing soils are primarily fill that was imported and compacted for construction of the former airfield. As a result, the existing ground is very hard and compacted. Stormwater runoff tends to perch and to move slowly across pervious surfaces, creating isolated wetland conditions in local depressions that exist in several locations.

3.1.1.2 Soils/Erosion

Geologic maps of the Seattle area identify the surficial soils of the project site as "modified" (AMEC Earth & Environmental, Inc., 2000). Geologic units to the west, northwest, and southwest of the former Navy base are mapped as Quaternary Vashon till, lacustrine deposits (Lawton Clay or equivalent) and alluvial silts and clays. The published geologic maps do not describe what type of soils existed on the project site prior to modification by development. However, the area is known to be underlain by glacial till that ranges from a gravely sandy silt to a silty sand, with varied quantities of scattered cobbles and boulders (City of Seattle, 1996). The original surficial geology can be roughly characterized by examination of the fill soils and any remaining native soils, since the historical information states that hills in the area were leveled and low areas were filled with hill scrapings.

On-site reconnaissance confirmed that a considerable amount of fill material was placed over peat deposits in the western portion of the project site. Borings taken by AMEC (2000) encountered areas of fill at depths between 4 and 11 feet throughout the project site. Borings in and around the general area of the former Mud Lake (located in the southeast portion of the site) encountered 5 to 11 feet of fill. One boring, drilled in the central area of the former Mud Lake location, encountered 25 feet of fill. The fill is generally composed of interlayered, loose to medium-dense, silty sand and medium-stiff, sandy silt with minor amounts of organic debris and gravel. Beneath the fill, about half of the borings encountered soft to medium-stiff peat (see **Appendix B** for detailed information on the borings). One boring (B-4) encountered peat at a depth of approximately 5 feet (AMEC Earth & Environmental, Inc., 2000). Most of the peat soils documented through the borings began at a depth of 9 to 10 feet. Peat soils were not encountered over much of the project site.

Beneath the fill and/or peat deposits, borings generally encountered interlayered, medium-dense, silty sands and sandy silts. The explorations near Lake Washington revealed fill soils overlying beach-like deposits of sand with minor amounts of gravel. Hard silts were encountered at depth in a few locations (AMEC Earth & Environmental, Inc., 2000).

The site soils have a high content of fine-grained material. As a result, they are susceptible to erosion when disturbed. However, the site is very flat, which reduces the potential for transporting eroded materials in the event of disturbance.

3.1.1.3 Slope Stability/Geologic Hazards

There are no recorded slides or indications of unstable soils on the project site (City of Seattle, 1996). There are no steep slopes on the project site or in the immediate vicinity. Therefore, slope stability concerns in the affected area of the Sand Point peninsula are minimal.

Previous studies of the Sand Point site identified some areas of soil contamination by hazardous materials. These areas were excavated and the contaminated materials were removed (City of Seattle, 1996). Recent soil and groundwater testing on the project site indicated there would be a low likelihood of encountering petroleum-impacted soils in excavation on the site, and that on-site metals concentrations would not likely pose an acute or chronic problem to freshwater biota (AMEC Earth & Environmental, Inc., 2000).

3.1.2 Environmental Impacts of the Proposed Action

3.1.2.1 Geology/Topography

Development of the proposed action would result in phased clearing and grading of virtually all of the 153-acre project site for the construction of sports fields, sports courts, drainage features, wetlands, roads and utilities. It is anticipated that construction of the proposed action would be accomplished in phases over approximately a 10-year period. By the completion of the construction period the existing topography of the site would be re-contoured again, but these topographic changes would not be significant. The post-project site would be graded to gradually drain from the western and northern edges of the site toward Lake Washington, as at present, and the site would remain relatively flat with gentle slopes.

Most of the grading would be required to construct the athletic fields and the wetlands/ponds, and grading quantities would be balanced within the site as much as possible. Constructing the wetlands/ponds would create roughly 400,000 cubic yards of excavated cut material and constructing the fields would require roughly 370,000 cubic yards of fill material. Based on the results of the soil borings documented by AMEC Environmental (2000), the majority of the soils excavated on the site would be suitable as fill material for the sports fields. As a result, approximately 30,000 cubic yards of excess soil would be generated by the on-site grading activity. Final grading plans would be adjusted as necessary to accommodate this excess material on the project site, to avoid the need to haul soil off-site. Should soils unacceptable for sports field subgrade be encountered, they would be used as fill in areas with less stringent compaction and settlement requirements or would be removed from the site. Construction of the athletic fields would require importing roughly 60,000 cubic yards of base sand and/or gravel material that is not available on the site.

3.1.2.2 Soils/Erosion

Some limited short-term erosion and sedimentation impacts might occur to Lake Washington and existing wetlands during construction, as a result of soil disturbance for on-site clearing and grading. While this activity would occur in phases over an extended period of construction, it is anticipated that the potential for erosion and sedimentation impacts would be minimal. This conclusion is based in part on the flatness of the site and the lack of steep slopes that would represent greater potential for erosion. With the proposed phasing of construction activities, only a portion of the site would be exposed and subject to erosion at any given time. In addition, only one of the five construction phases includes grading work along the Lake Washington shoreline and specified seasonal work period limitations would apply to work in and near water or wetland areas, so construction timing would help to limit the potential for erosion and sedimentation impacts.

Finally, the construction stormwater permit that would be required for the project would specify implementation of Temporary Erosion and Sediment Control (TESC) measures to protect disturbed areas, control and direct stormwater runoff from and through construction zones, and provide water quality treatment for runoff from the site. TESC measures would likely include use of filter fencing, straw-bale barriers, gravel filter berms, temporary sediment ponds, sediment traps, stabilized construction entrances, rock check dams, interceptor ditches, inlet protection, and mulching and matting of exposed soil. Best Management Practices (BMPs) associated with the TESC plans would be consistent with the *City of*

Seattle, Construction Stormwater Control Technical Requirements Manual, July 2000. Compliance with the manual's requirements would be sufficient to minimize the erosion and sedimentation impacts of the proposed action.

3.1.2.3 Slope Stability/Geologic Hazards

No impacts to slope stability would be expected as a result of the project construction, because there are no recorded slides or other indications of unstable soils on the project site. There are no steep slopes on the project site or in the immediate site vicinity that could become destabilized by construction disturbance for the project. Grading to create the desired surface drainage patterns would create isolated raised berms that would have side slopes of a 3:1 ratio (horizontal to vertical); slopes of this degree have no known stability concerns. The proposed action also includes an access path from Sand Point Way NE along NE 65th Street that would meander down a sloped area of the Sand Point Magnuson Park property. Again, the slopes involved are moderate and no significant stability issues apply to this feature.

As indicated in Section 3.1.1.3, recent testing on the project site indicated a low likelihood of encountering contaminated soils during construction. Soil and groundwater sampling for potential contamination would need to be conducted during construction for the project, and remedial plans would need to be prepared if actionable levels of contaminants were encountered. The potential for this to occur would primarily be limited to the area near the former Commissary building.

3.1.3 Impacts of the Alternatives

3.1.3.1 Lesser-Capacity Alternative

Under the lesser-capacity alternative the project site would still be graded to drain generally from the western and northern edges of the site toward Lake Washington, with resulting insignificant changes to the existing topography. Under this alternative the amount of grading and excavation necessary to construct the sports fields, infrastructure, utility upgrades, sports courts, roadway improvements, wetlands and pedestrian access would be similar to, but slightly less than, the proposed action. The central interior access road, parking lot and tennis courts would remain under the lesser-capacity alternative, so this area of the project site (approximately 5 acres) would not be disturbed and re-graded. In addition, the area occupied by Field 6 in the proposed action would not be disturbed for sports field construction, as the two northerly soccer fields would be shifted to the west and a parking lot eliminated in the lesser-capacity alternative.

As under the proposed action, some limited short-term erosion and sedimentation impacts might occur during construction for the lesser-capacity alternative. However, the site is flat and the implementation of Temporary Erosion and Sediment Control (TESC) measures using the appropriate Best Management Practices would mitigate for such impacts. No impacts to slope stability would be expected. The potential for encountering geologic hazards, specifically contaminated soils, would be the same as for the proposed action.

3.1.3.2 No Action Alternative

A few minimal improvements to the project site would occur under this alternative. Maintenance improvements and demolition of existing structures associated with this alternative would require a minimal amount of surface disturbance and grading. Temporary Erosion and Sediment Control measures would be implemented as necessary for demolition and maintenance activities. Overall, new impacts to earth resources from surface disturbance and landscape modification would be negligible under this alternative. However, the existing conditions of highly modified surficial geology and low soil permeability would persist over most of the site. Soil and groundwater sampling for potential contamination would need to be conducted during demolition of the former Commissary building, and remedial plans would need to be prepared if actionable levels of contaminants were encountered.

3.1.4 Cumulative Impacts

Construction of the Navy buildings, roadways, utilities and runways significantly changed the surficial geology and topography of the Sand Point peninsula, including the project site. Geologic maps indicate the site soils as being "modified." The proposed action and alternatives would further modify the project site to a certain degree. Adverse earth-related impacts associated with the proposed action and alternatives would be minimal, however. Subgrade fill material needed for the athletic fields, with respect to cut and fill quantities, would require importing 60,000 cubic yards of field base materials/soil. In addition, existing concrete and asphalt pavement would be crushed and reused as fill on the site. These actions would not substantially change the topographic character of the site, but they would maximize the beneficial use of excavated material and would improve the hydrologic functioning of the site. Based on the required application of TESC measures during construction and the lack of slope stability hazards associated with the project, erosion and sedimentation impacts from project construction activity should be insignificant. Similarly, other pending and planned projects at Sand Point Magnuson Park and one known off-site project in the local area would not result in extensive areas of ground disturbance and associated erosion and sedimentation impacts. Therefore, cumulative impacts to earth resources from the proposed action or the lesser-capacity alternative are not anticipated.

3.1.5 Mitigation Measures

Construction activities for the proposed action would incorporate the following mitigation measures to limit impacts to earth resources:

- Temporary Erosion and Sediment Control (TESC) measures would be implemented per the City of Seattle *Construction Stormwater Control Technical Requirements Manual*.
- Clearing, grading and excavation activities would be minimized during extreme wet weather conditions to reduce erosion potential.
- All soils would be stabilized, including stockpiles that are temporarily exposed for more than 2 days during wet weather conditions.
- Construction vehicle access from local streets to the project site would be limited to one route, to limit surface disturbance from vehicle operation.
- A single construction entrance to the project site would be established to limit the tracking of sediments onto public roadways.

- A dust suppression plan to control dust generated on and off the site during construction would be implemented.
- Dust-control measures would be applied at construction sites, including sprinkling water on exposed soils during the drier times of the year and placing temporary ground covers on long-term material stockpiles.
- Dust-control measures applied to trucks and other construction equipment would include use of a wheel washer, to reduce soil tracked onto public roads, and application of policies requiring adequate freeboard and covering of loads for excavation/fill materials.On-site erosion would be controlled by stabilizing exposed soils using temporary seeding, mulching, matting or clear plastic covering.
- During construction, exposed soils would be sprayed with water to reduce surface and air movement of dust.
- Check dams, filter fencing, sediment ponds and traps and interceptor ditches would be used to prevent sediment from entering all storm drains, including ditches, which receive runoff from disturbed areas.
- Temporary on-site conveyance channels would be designed, constructed and stabilized to prevent erosion from the expected velocity of a 2-year, 24-hour design storm for the developed condition.
- Soil and groundwater sampling for potential contamination would need to be conducted during construction for the project, and remedial plans would need to be prepared if actionable levels of contaminants were encountered.

3.1.6 Significant Unavoidable Adverse Impacts

Clearing and grading activities for the project would expose soils, which could be temporarily subject to water or wind erosion within the area of localized disturbance. With the implementation of temporary erosion and sediment control measures, unavoidable soil erosion impacts on the project site are expected to be insignificant.